month is beginning to be looked upon as commonplace. There is scarcely a metal which cannot be deposited electrolytically with comparative ease and the prices of some of the rarer metals is going down rapidly. Zinc used to be considered a difficult metal to deposit successfully. It is now produced in some of the Australian mines in almost a pure state from refractory ores at the rate of thousands of tons per annum. Similarly the old method of galvanizing is rapidly disappearing and electro-deposition is taking its place and this metal is now so deposited on the hulls of ships, on anchors and other smaller articles cheaply and perfectly. A new industry has practically sprung up and there is every indication that the technical chemist of the near future will have to take an inferior place unless he be also well versed in electricity and electrical appliances. This branch of applied science is revolutionizing many things. It has within a few years produced an enormous improvement in our magazine illustrations, and has, at the same time, reduced the cost of this kind of literature and of atlases and charts enormously. Electro-chemistry is now used on a large scale for the production of chlorate of potash, bleaching materials, alkalies, coloring matters, antiseptics, like iodoform, anæsthetics, like chloroform, etc. In fact, it is getting to be difficult even to enumerate the manufactures in which it is used. It has revolutionized the extraction of gold, and plants of enormous capacity are now in use in some of the gold fields, the poorest ores and tailings being made to yield up almost the last trace of the precious metal. The production of ozone by the ton, the purification of sewage and the sterilization of water are all accomplished facts.

Some progress has even been made in the introduction of chemicals through animal tissue by electrolysis or cataphoresis, and Röntgen has shown us how to see through the body.

Then, again, we have got the electric furnace, and with it the power to fuse almost the most refractory substances. In this way aluminum is now produced at a few cents a pound, whereas most of us remember when its price had to be reckoned in hundreds of dollars. In a similar way phosphorous is now produced on a large scale, as are also various carbides, carborundum, acetylene, etc.

It is impossible to look back over the history of electricity and its applications and notice the apparent geometric ratio in which advances are being made, and not to speculate on what a giant this science is going to become in another quarter of a century. Undoubtedly no one can study this one branch of science without being persuaded of the great value of scientific work for the advancement of human enterprise.

Thomas Gray.

Rose Polytechnic Institute.

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*A PROPOSED BUILDING FOR THE SCIENTIFIC ALLIANCE OF NEW YORK.**

The Scientific Alliance is the outgrowth of several conferences of commissioners from all of the societies now included in the Alliance (except the Entomological Society, which was not then in existence, and also of the New York Branch of the Archæological Institute of America, which, however, did not enter the final organization), called by a committee appointed by the New York Academy of Sciences, in February, 1891, 'to consider what methods might be adopted for mutual benefit and support.' The first meeting of the Commission was held at the American Museum of Natural History on March 11, 1891, and amongst the subjects discussed was 'the desirability

*Report of the Building Committee, C. F. Cox, Chairman, to the Council of the Scientific Alliance of New York.

of obtaining a building for a common meeting place of all the societies.' Thus, at the very outset of the movement, the idea of bringing the societies together under one roof was prominent in the minds of those who formed the Alliance.

At the first meeting of the Council, September 28, 1891, the President was 'requested to appoint a committee of seven to consist of himself as chairman and one member from each of the allied societies to consider the practicability of obtaining a building for the use of the Alliance.' Thus again the policy of seeking a common meeting place was made one of its main objects by the now fully organized federation.

On October 10, 1891, the Building Committee was appointed, and from that time to this it has not ceased to consider every suggested scheme and to follow every possible clue which seemed to lead to the attainment of its objeet. At the meeting of the Council held January 22, 1892, the committee presented its first report, in which it suggested three plans for consideration, as follows:

(I.) That the Alliance attempt to secure enough money by subscription to purchase land, erect a building and maintain it.

(II.) That the Alliance endeavor to obtain from the City or the State money to erect a building on public land, which would necessitate the raising of a guarantee fund for the support of the building which, obtained under these conditions, would belong to the City.

(III.) An informal suggestion from President Low, of Columbia College, that the Alliance should cooperate with the College in the erection of a building to be used jointly by the Alliance and the College.

The first of these plans was at the time considered impracticable, chiefly because of the financial depression then prevailing, and the continuance of the same condition has caused the committee to hold it in abeyance until now. The second plan had in contemplation an attempt to place the Scientific Alliance on a basis similar to that of the Museum of Natural History, assuming that the societies could render an equivalent for public aid by the maintenance of a scientific library and through courses of free lectures upon popular scientific subjects. The third plan, however, was the one which for the time being seemed to hold out the most hope of accomplishment and therefore met with the approval of the Council. The idea underlying it was that when Columbia University should remove to its new site and should dispose of its property on Madison Avenue it would still need a down-town building for its offices and perhaps also as a place for certain of its lecture courses. The scheme the committee had in mind was to endeavor to raise a sum of money sufficient to pay one-half the costs of such a building, in consideration of which the Council should have a perpetual use of a fair proportion of the rooms for the constituent societies, the title to the property to be taken by Columbia University. The Council authorized the committee to confer with President Low upon some such basis, and the matter was accordingly gone over with him, but without definite result.

Meanwhile the committee were informed that the Trustees of the fund left by the late Samuel J. Tilden, for the foundation of a public library, would be willing to discuss the question of devoting that fund to the purposes sought to be accomplished by the Scientific Alliance, namely, the erection of a building for the use of the allied societies, the establishment and maintenance of a library of general science, the endowment of original research and the publication of scientific memoirs and other papers; the idea being to found an institution for New York which should combine the objects of Burlington House and the Royal Institution of Great Britain, with the addition of a

department for the issue of a series of works similar to those published by the Ray Society and other learned bodies abroad. A number of interviews with the Tilden Trustees, collectively and individually, subsequently took place and, indeed, continued until the Astor, Lenox and Tilden foundations were united.

In September, 1892, your committee drew up a formal address to the Tilden Trustees, setting forth in detail the plan above referred to, and this communication was adopted by the Council, signed by all the members, and duly transmitted to the Trustees. The general scheme therein outlined seemed to receive the approval of several of the Trustees, and your committee felt greatly encouraged by their manifest interest in the matter. The President of the Tilden Trust gave it a particularly cordial reception, and in an article which he published in *Scribner's Magazine*, in September, 1892, referred to cooperation with the Scientific Alliance, on some such lines as proposed by us, as one of the possible methods of accomplishing the objects of Mr. Tilden's generous bequest. But when the Tilden fund was transferred to the Trustees of the New York Public Library it looked as if an end had been made of all the hopes we had built upon the negotiations with the Tilden Trustees. We owe it, however, to the Hon. Andrew H. Green that the subject was subsequently taken up, in a much modified form, by the Trustees of the Public Library, who appointed a committee to consider the matter. But that committee has never invited your Building Committee to a formal conference, and, as far as we can learn, has made no report to the appointing body. The Library Trustees, have, however, put upon record a resolution declaring the duties of the corporation, among which are included 'alliances or affiliations with the principal scientific societies of the city and the gathering together of their libraries and collections in the main building, and the furnishing to them of facilities for meetings, and arrangements for the giving of lectures on scientific, literary and popular subjects.'

On November 15, 1892, a joint meeting of the societies composing the Alliance was held in the lecture hall of the American Museum of Natural History, at which the aims of the Alliance were set forth in five carefully prepared addresses, and the project for the possession of a building was given a prominent place and fully elaborated. The proceedings of that conference were afterwards printed in pamphlet form and widely distributed and thus served to supplement the efforts of the Building Committee in making known to the public the purpose towards which it was working.

In December, 1892, negatiations were opened with the President of the American Museum of Natural History having in view a possible arrangement by which the societies in the Scientific Alliance might become, at least temporarily, tenants of the Museum. These negotiations have been dropped and resumed at different periods, and at one time took the form of a proposal that the Museum authorities should cooperate with the Council of the Alliance in procuring legislation which would enable the Alliance to construct a building on the northwest corner of Manhattan Square, the architecture to be such as to harmonize with that of the Museum, with the idea that whenever the Museum should cover the rest of the Square the Alliance building would form an integral part of the general structure or group of structures. The scheme was worked up out of deference to the opinion of many members of the Alliance who thought it most natural that the scientific societies should be affiliated with the Museum for mutual helpfulness and for the creation of a great scientific center at Manhattan Square. But no encouragement was

obtained from the Museum authorities for this comprehensive plan and it was soon abandoned. We did, however, receive some encouragement for the idea of occupying rooms in the Museum building, as tenants at pleasure of the Trustees, but when we came to discuss the details of such an arrangement so many administrative difficulties were discovered that it was deemed impracticable.

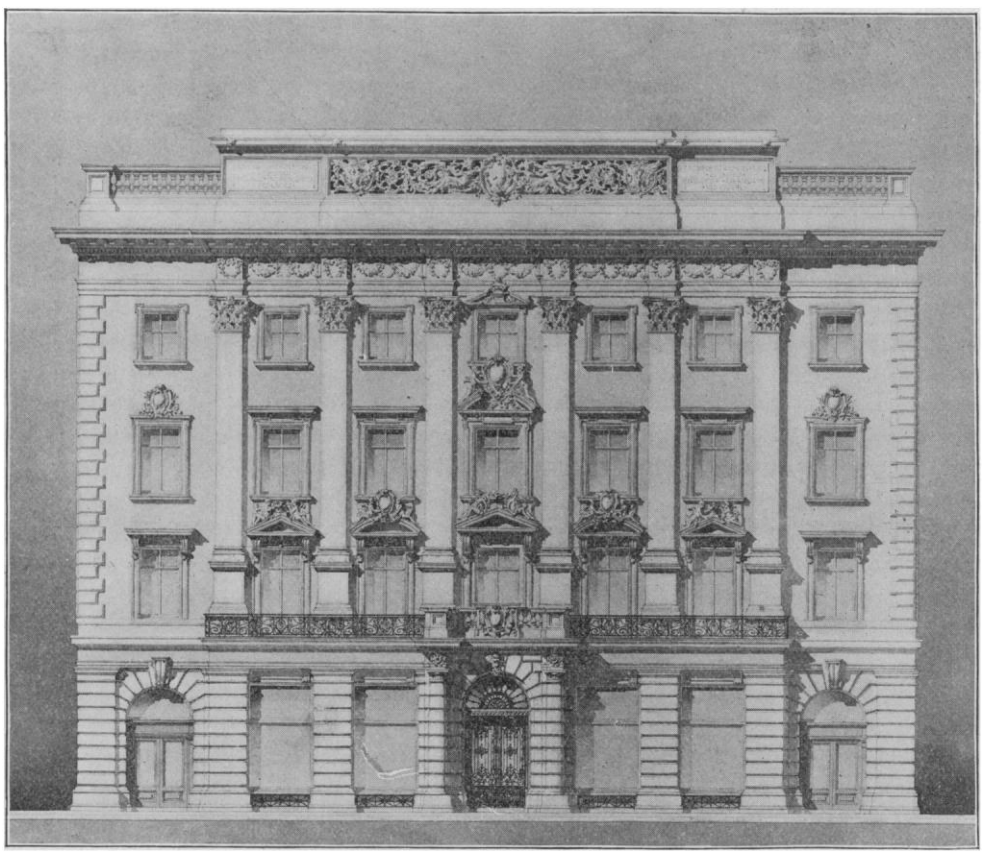
In January, 1893, the question of removing the present City Hall to Bryant Square and devoting it to the use of the Tilden Trustees for library purposes was under discussion and it looked as if it might be decided affirmatively. Your committee took advantage of this situation to address a memorial to the Municipal Building Commission, which had the matter in charge, urging that, in case the City Hall was to be converted to educational purposes, the Scientific Alliance be given a permanent home in it in return for such services as it could render the public through the use of its libraries and free lecture courses. It was not necessary to pursue this project long, because public sentiment compelled the abandonment of the plan for removing the City Hall from its present site.

In June, 1895, the Council was incorporated by an Act of the Legislature of the State of New York, in which the objects were stated as follows: "To establish and maintain a scientific center in the City of New York, in which scientific societies can have their headquarters; to establish, accumulate, hold and administer a public library and a museum, having special reference to scientific subjects; to publish scientific works or periodicals; to give scientific instruction by lectures or otherwise, and to advance by appropriate means scientific discovery and the knowledge of scientific truth among the people; and to these ends to take and hold property as aforesaid; to erect or acquire, by deed, contract or otherwise, a suitable building, buildings, or part of a building, to contain such library and museum, and other rooms appropriate to the purposes aforesaid, and to the advancement of the scientific objects of the various societies represented in said corporation."

Early in 1896 the committee began to realize that the several plans which had been considered, for cooperation between the Alliance and other institutions, were not developing into tangible shape, and they therefore turned their attention to the original idea of a building exclusively for the use of the Alliance. To this they felt encouraged by the evidences then appearing that the general financial condition of the country was beginning to improve, and by the revival of public spirit and local pride manifested by many generous gifts and other practical aids bestowed upon various benevolent and educational enterprises by the citizens of New York. Accordingly, without relinquishing the lines of effort previously pursued, the committee began a quiet study of the broader problem and invited several well-known architects to make preliminary sketches of a building calculated to meet the needs of the allied societies and to come within a limit of cost for which it seemed possible that the Council might raise the money.

The first design submitted was by Mr. Geo. Martin Huss and was intended for a building entirely given up to the uses of the societies and consequently producing no revenue except from the occasional rental of its halls. The elevation was submitted to the Council at the meeting of May 21, 1896, and was adjudged to be dignified and impressive in style, but the question immediately arose as to the advisability of providing for office and store space in addition to lecture-halls and meeting-rooms in the building, and it was suggested to the committee to procure an alternative design embodying these features. Accordingly, at

the Council meeting of February 25, 1897, the committee submitted plans made by Mr. R. W. Gibson, and they were thoroughly discussed and referred back for certain modifications. Both the architects who have made sketches have performed a great deal of gratuitous labor on our behalf and are entitled to the gratitude of the Council.



SCIENTIFIC ALLIANCE BUILDING.
(From Design of R. W. Gibson, Architect.)

During the past summer Mr. Gibson has given particular attention to the development of our ideas and has patiently drawn and redrawn his designs several times.

The result is that we are now able to present an elevation and plans which seem to us as nearly ideal as they can be made without knowledge of the actual spot upon which the building is to stand and the amount of money that may be devoted to its erection. It is believed that the necessary land can be procured in a desirable location for not more than $200,000, and that the building can be erected of the best materials for about $300,000. The scheme supposes that the building will occupy four city lots, upon a corner, thus giving one hundred feet frontage on each street. This arrangement permits of ample entrances and exits as well as an abundance of side light. The first floor plan provides for two rentable offices or stores from which it may

be possible to obtain sufficient income, in connection with rentals of lecture halls, etc., to pay the operating expenses of the building, thus entirely relieving the societies from any charges for their rooms, as, under our charter, the property will be exempt from taxation. The large auditorium is calculated to seat one thousand persons, and is approached by ample hallways directly from the street. The main feature of the second floor is a large parlor or club room, extending across the whole front of the building, which is intended to be a place of general rendezvous and social intercourse for the members of the societies. On this floor, however, there is also an assembly room which is to be for the common use of the societies for meetings that may be larger than can be accommodated in their separate apartments. When not so used it is to be available for public rental. On the second, third and fourth floors twelve society rooms and four laboratories are provided. Eight of the former will be assigned to the societies now included in the Alliance, and four will be reserved for societies that may be admitted hereafter. In the meantime they may be rented. The fifth floor is lighted largely from the roof and is devoted exclusively to the library and reading rooms, with double-tiered stacks for about 200,000 books.

It is not necessary to go into a minute description of these plans, as the drawings submitted herewith exhibit plainly the details, which have all been worked out with much care. We believe that every essential requirement has been met as fully as the limits of space will permit, and we are so well satisfied with the plans as a whole that we recommend that they be reproduced in suitable form for distribution to the members of the Alliance, and also that a considerable number be sent out to the public, accompanied by appropriate text, in the hope that interest may be awakened in the enterprise we have in hand, and with faith that the paper may come under the notice of some generous citizen who will be induced to at least inaugurate a movement for the happy realization of what is now but an earnest desire on our part.

The general financial improvement of which we have spoken not only has continued, but has gathered force during the past year, so that now many good judges of business matters confidently look forward to a period of substantial prosperity. If their anticipatious are well founded we may have before us the great opportunity for which we have long waited, to place before the public-spirited citizens of New York, with success, an appeal for the establishment of science upon a firm and enduring basis in this enlarged and aspiring metropolis. We feel confident that the time has come to put forth an earnest effort in this direction and trust that the Council will confirm our purpose and reinforce our endeavor by all the means that can be properly invoked for the cause.

ZOOLOGICAL NOTES.

DR. ALFRED SCHAPER has an interesting paper on 'The Influence of the Central Nervous System upon the Development of the Embryo' in the *Journal* of the Boston Society of Medical Sciences for January 18th. The animals experimented upon were the larvæ of frogs, and the aim of the experiment was to remove the entire central nervous system, or certain parts of it, by excision in very young larvæ where the neural tube had just closed, and then to try to keep the larvæ alive, observing the results of the operation on the course of development. The dorso-frontal portion of the head was cut off with a sharp lancet, removing in successful cases the entire brain, with the medulla, the anlage of the eyes, the olfactory and auditory organs.

Some of the larvæ lived, and developed